Metal Package PMT

Photon Counting Head H11890 Series

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The H11890 series is a compact photon counting head consisting of a metal package photomultiplier tube along with a high speed photon counting circuit and a high-voltage power supply unit. The high voltage supply for the photomultiplier tube and the discriminator level are preset to optimum values, allowing photon counting measurement by just connecting to a PC.

Photon counting measurement data transfer, counter gate time and other necessary adjustments are controlled by commands from the PC through the USB interface.

Since the H11890 series performs linearity correction by the internal MPU, it provides excellent count linearity within a range of -10 % at 2×10^7 s^{-1}.

Product Variations

Type No.	Spectral Response	Features
H11890-110	230 nm to 700 nm	Super bialkali photocathode, high sensitivity in visible range.
H11890-210	230 nm to 700 nm	Ultra bialkali photocathode, high sensitivity in visible range.
H11890-01	230 nm to 870 nm	Multialkali photocathode, for UV to near IR range.

This product can't be used at vacuum environment or reduced pressure environment.

Specifications

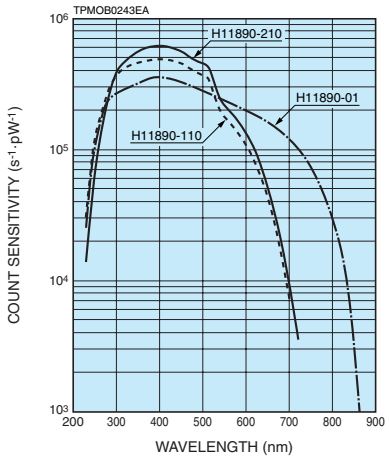
(at +25 °C)

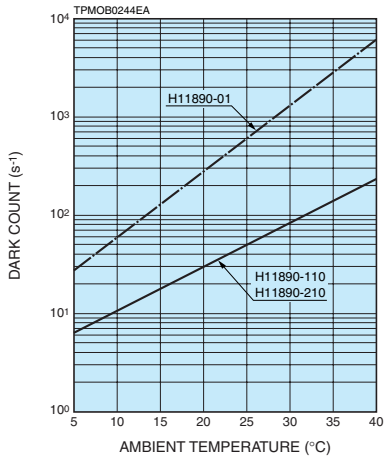
Parameter			H11890-110	H11890-210	H11890-01	Unit
Input Voltage			USB Bus Power			—
Max. Input Current			50			mA
Effective Area			ϕ8			mm
Peak Sensitivity Wavelength			400			nm
Spectral Response Range			230 to 700	230 to 700	230 to 870	nm
Count Sensitivity	Typ.	300 nm	3.7×10^5	3.9×10^5	2.7×10^5	$s^{-1} \cdot pW^{-1}$
		400 nm	4.9×10^5	6.1×10^5	3.6×10^5	
		500 nm	3.7×10^5	4.6×10^5	2.8×10^5	
		600 nm	1.1×10^5	1.3×10^5	2.0×10^5	
		700 nm	7.7×10^3	9.1×10^3	1.2×10^5	
		800 nm	—	—	3.0×10^4	
Count Linearity *1			5.0×10^6			s^{-1}
			2.0×10^7 (with function of linearity correction)			
Dark Count *2		Typ.	50	50	600	s^{-1}
		Max.	100	100	1000	s^{-1}
Pulse-pair Resolution			20			ns
Counter Gate Time			1 to 10 000 (PC Control)			ms
Counter Method			Double counter			—
Count Date			4 byte (MSB: Overlight Detection bit)			—
Interface			USB 2.0			—
Compatible OS			Windows 7 Pro (32 bit OS only)			—
Operating Ambient Temperature *3			+5 to +40			°C
Storage Temperature *3			-20 to +50			°C
Weight			54			g

*1: Random pulse, at 10 % count loss.
*2: After 30 minutes storage in darkness at plateau voltage.
*3: No condensation
* Supplied: CD-ROM (containing instruction manual, device driver, DLL, sample software, C++ sample code, Labview sample code), USB cable (1.5 m)

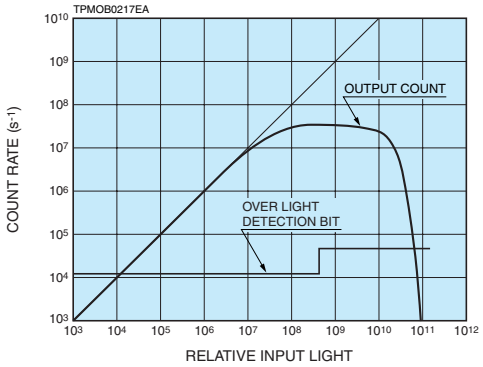
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Characteristics (Count sensitivity, Dark count)

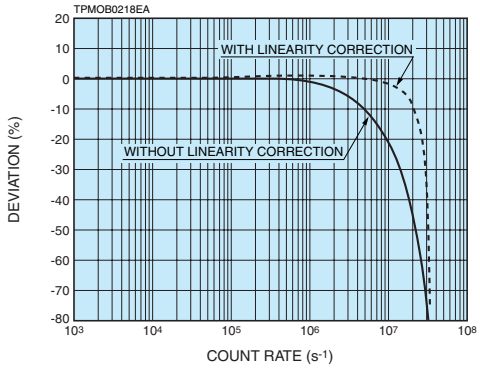




●Count Rate Linearity and Over Light Detection Output



●Count Rate Linearity Correction

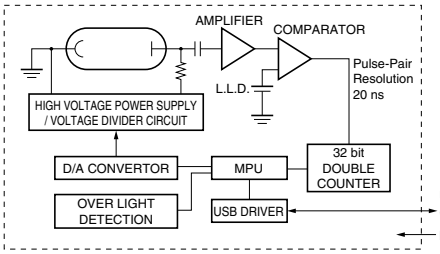


Correction Formula

$$N = \frac{M}{1-Mt}$$

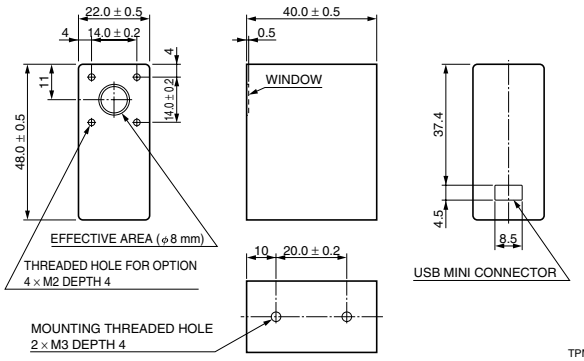
N: Real Count Rate (s^{-1})
M: Measured Count Rate (s^{-1})
t: Pulse Pair Resolution (s)

Block Diagram



TPMOC0242EA

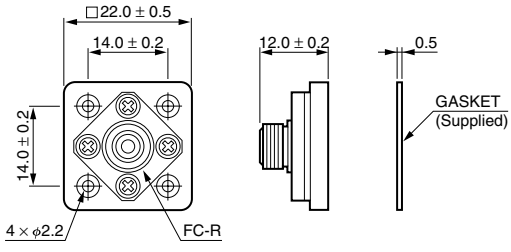
Dimensional Outlines (Unit: mm)



TPMOC0075EB

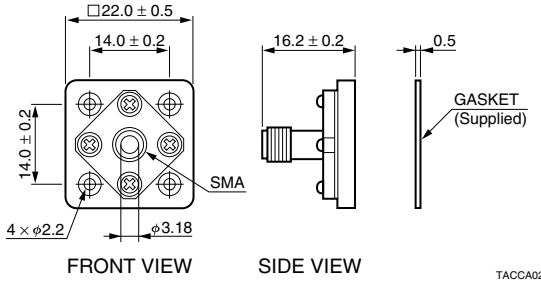
Options
(Optical Fiber Adapter)(Unit: mm)

E5776 (FC Type)



TACCA0055EB

E5776-51 (SMA Type)



TACCA0239EB

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TPMO1052E02
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